

1.185.746

PATENT SPECIFICATION



DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Lock Device

I, ARMAS KALORVO NILOLA, of Mansu-
vantie 116 B 8, Helsinki 71, Finland, a citizen
of Finland, do hereby declare the invention,
for which I pray that a patent may be granted
to me, and the method by which it is to be
performed, to be particularly described in and
by the following statement:—

The present invention refers to a locking
arrangement comprising a locking plate fixed
to a door and a locking plate fixed to a door-
post at a corresponding point, coaxial openings
are provided in each plate, a separate lock can
be passed through the openings.

The invention is intended to replace known
padlocks and to provide an improved locking
device. Padlocks now in use have the drawback
that they are easy to force with a crowbar,
pinch bar, pincers, hammer, saw, file and nu-
merous other tools.

According to the invention, there is provid-
ed, a locking arrangement comprising first and
second locking plates having coaxial openings
which plates may be fixed to a door and a
door-post, respectively, at corresponding
heights, and a separate lock which may be
passed through the openings, wherein the lock
comprises a cylindrical lock case part of which
case fits into the openings, a coaxial transverse
bore at one end of said lock case, a rotatable
plug within said lock case the plug having an
eccentric part which coincides with the trans-
verse bore, and a locking piece placed between
the bore and the eccentric part of the plug,
so that when the plug is rotated by means of
a key with respect to the lock case, the eccen-
tric part of the plug pushes the locking so that
it partially protrudes from the transverse bore,
thus effecting a locking action.

The lock arrangement of the present inven-
tion is considerably more difficult to force than
any padlocks belonging to previous art. The
lock is simple in design and therefore inexpen-
sive in manufacture. In place in the openings
of the locking plates, the lock enjoys better

protection from the weather than any previous-
ly known padlocks.

In the accompanying drawing;

Fig. 1 is a perspective front view of a lock
device according to the invention,

Fig. 2 shows an embodiment of a lock
device according to the invention, in longi-
tudinal section,

Fig. 3 shows a section along the line
III—III in Fig. 2, and

Fig. 4 shows a section along the line
IV—IV in Fig. 1.

In the embodiment of the locking arrange-
ment shown in Figs. 2 and 3 a locking plate
1 is shown fixed on the door and a locking
plate 2 on the door-post. The locking plates
have coaxial openings. Moreover, the lock de-
vice includes a lock which is pushed through
the said openings. The lock consists of a cylin-
drical lock case 3, which has a part 4 fitting
exactly into the openings of locking plates 1
and 2. At one end, the lock case has a part
5 which is thicker than part 4. At the opposite
end of the lock case 3, a conical transverse
bore 6 is provided. Within the lock case 3
there is a lock cylinder containing a rotatable
plug 7. Opposite the bore 6, the plug 7 has
an eccentric part consisting of a groove 8 fol-
lowing the circumference of the lock cylinder
and having a depression 9 at one end. In the
groove 8, a separate locking piece is placed,
which consists of a steel ball 10 having a dia-
meter larger than the smallest diameter of the
opening 8.

In Figs. 2 and 3 the locking arrangement
is shown in its closed position. The lock is
opened by inserting the key in the lock plug
7 through the opening 11 and turning the plug
7 through about 90 degrees in a clockwise
direction, as can be seen from Fig. 3. The
ball 10 then falls into the depression 9 so that
the lock can be withdrawn and the door
opened. To lock the door, the procedure is
reversed. The thicker portion 5 at the end of

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the lock case 3 tapers conically, with the result that it is difficult to grip this part with any tool and to withdraw the lock by force.

The lock device shown in Figs. 1 and 4 is similar in principle to that of Figs. 2 and 3, but it presents an elaborated design. In this case, each locking plate consists of two plates 12, 13 and 14, 15, respectively. The part of plate 12 protruding from a door 16 and a door-post 17 has been bent to form a flange 18 encircling the edges of the other plates 13, 14 and 15. The flange 18 precludes the possibility of introducing a tool in the gaps between the plates 12, 13, 14 and 15. In addition, the flange 18 guides the plates 12, 13, 14 and 15 so that their openings align exactly.

As can best be seen from Fig. 4, a cap 19 has been joined by force fitting to the opening in the locking plate composed of the plates 12 and 13, its crown pointing away from the locking plates. The cap 19 tapers conically, with the result that it is difficult to grip with any tool. The cap 19 is completely free to turn, and consequently it cannot be forced by wrenching with a tool.

Into the openings of the locking plates, i.e., of the plates 12, 13, 14 and 15, and into the cap 19 a lock is positioned which is similar in principle to the lock displayed in Figs. 2 and 3. However, the eccentric part in the plug 7 now merely consists of a depression 9 for the steel ball 10. The inner surface of the cap 19 has a depression 20 for the locking piece, that is, for the steel ball 10, and this depression is annular so that the lock may freely turn around its axis.

The lock shown in Figs. 1 and 4 is opened by turning the lock plug 7 with a key until the steel ball 10 falls into the depression 9. The lock may then be withdrawn. It is also possible, instead of turning the plug 7 with the key, to hold the plug 7 stationary with the aid of the key and to rotate the lock case 3 by hand. For this purpose, a knurling 21 has been provided on the thick portion 5 of the lock case 3, as has been indicated in Fig. 1.

It is obvious that the different embodiments of the invention may vary within the scope of the Claims presented below. For instance, the cross section of the circumference of the lock case 3, and correspondingly the shape of the openings in the locking plates, need not necessarily be circular. However, any shape other than circular introduces the risk that the lock may be forced by wrenching. On the other hand a lock device of the kind shown in Figs.

1 and 4 may be considered highly advantageous because both the lock case 3 and the cap 19, which may be grabbed with some tool from the outside, are freely rotatable independent of each other and thus cannot be forced by wrenching. It is possible, on the other hand, to design the cap 19 so that it is integral with the plate 12, in which case it is not rotatable.

WHAT I CLAIM IS:—

1. A locking arrangement comprising first and second locking plates having coaxial openings which plates may be fixed to a door and a door-post, respectively, at corresponding heights, and a separate lock which may be passed through the openings, wherein the lock comprises a cylindrical lock case part of which case fits into the openings, a coaxial transverse bore at one end of said lock case, a rotatable plug within said lock case the plug having an eccentric part which coincides with the transverse bore, and a locking piece placed between the bore and the eccentric part of the plug, so that when the plug is rotated by means of a key with respect to the lock case, the eccentric part of the plug pushes the locking piece so that it partially protrudes from the transverse bore, thus effecting a locking action.
2. An arrangement according to claim 1, wherein a thicker portion at one end of the lock case tapers conically.
3. An arrangement according to claim 1, wherein in the opening in one of the two locking plates a cap is mounted locking with its crown pointing away from the plates and having on its interior surface a depression for the locking piece which is pushed out through the transverse bore in the lock case.
4. An arrangement according to claim 3, wherein the cap is rotatably attached to the locking plate.
5. An arrangement according to claim 3, wherein the depression on the inner surface of the cap is annular.
6. An arrangement according to claim 3, wherein the outer surface of the cap tapers conically.
7. Lock device according to Claim 1, substantially as hereinbefore described with reference to the accompanying drawing.

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COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of the Original on a reduced scale

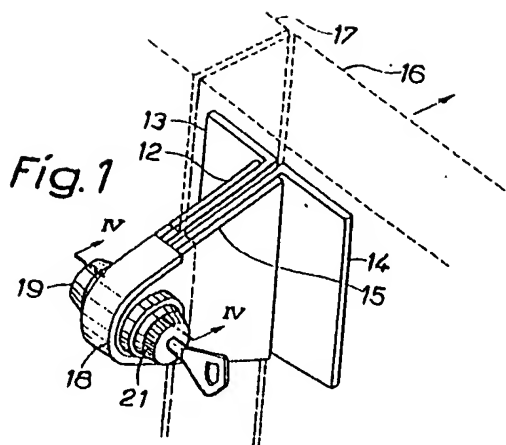


Fig. 3



Fig. 2

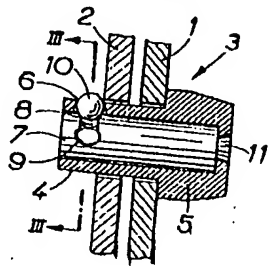


Fig. 4

